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ABSTRACT

Assessing the self-esteem of students may be one way to evaluate the effectiveness of educational programs. To study the impact of an art-based program, middle and high school students completed the Self Esteem Inventory as well as intelligence and achievement measures. Results showed that self-esteem mean scores (both pre and post) were well above 50% in all grades. The tenth grade students achieved the largest absolute increase in pre- versus post-esteem means. Students in all grades stayed the same or increased on post-esteem mean scores. No significant differences were found across grades or between sexes. The findings indicate that the major significant predictor variable was the pre-esteem score. (JAC)

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The Adoption of a Self-Esteem Inventory to Assess the Impact Of an Arts Based Program on Middle and High School Children

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Paper presented at the Annual Meeting of the Eastern Educational Research Association, Philadelphia, March, 1981.

The Adoption Of A Self-Esteem Inventory To Assess The Impact Of An Art Based Program On Middle and High School Children

An assessment was made of the self-esteem of children in grades seven through twelve enrolled in an Arts Program in Richmond County Public Schools, Virginia. The Self-Esteem Inventory, developed by Stanley Coopersmith (1967), was used for this purpose.

Coopersmith (1967) reported self-esteem mean scores for a sample of 1,748 children in the central Connecticut Public Schools. The means were 70.1 and 72.2 for boys and girls respectively. Coopersmith stated that the distribution of scores obtained from this sample were skewed in the direction of high self-esteem. The test-retest reliability after a three year interval using a sample of 56 children from the above population was .70.

There are 58 items that comprise the Self-Esteem Inventory; eight items form a "lie" scale, and 50 items form the self-esteem measure. The range of scores extend from 0 to 100.

In addition to the Self-Esteem Inventory, the children involved in the arts program were tested on the S.R.A. (a standardized intelligence test), and the Stanford Achievement Test in reading and math (7th grade only). A pre test-post test design was conducted with the junior high school (N=29) and high school (N=49) samples. Pre-esteem and SRA scores were used as predictors across all grades (7-12) with SAT scores added as a predictor for 7th grade. Because there were no compatible art data added to the regression model it was not possible to study the statistical relationship between art skills and self-esteem.

Results

Number of students tested on Self-Esteem Inventory was 78 in grades 7 through 12.

t tests (comparing pre-esteem vs. post-esteem scores for each grade showed the following): (See Table 1)

---Mean Self-Esteem Scores in the 7th grade were 61.5 and 67.1 for pre-esteem and post-esteem respectively (N=14). The t test for difference between these scores was t=2.09, p=.05. There was a significant and postive increase in self-esteem scores for this grade.

---Mean Self-Esteem Scores in the 8th grade were 61.5 and 61.6 for pre-esteem and post-esteem respectively (N=15). The t test for difference between these scores was t=.03, p=.97. There was no significant difference between these scores.

---Mean Self-Esteem in 9th grade were 70.2 and 67.4 for pre and post-esteem respectively (N=17). The t test was -1.83, p=.08. There was no significant difference between these scores.

---Mean Self-Esteem Scores for 10th grade were 69.5 and 78.3 (N=8) The t test for difference was t=2.11, p=.07. While this result is not statistically significant these post-esteem scores show the largest postive increase from pre-esteem. Perhaps the relatively small number of students tested in this group affected the statistical outcome.

---Mean Self-Esteem Scores for 11th grade were 57.1 and 60.3 for pre and post-esteem respectively (N=7). The t test for difference was t=.92, p=.39. There was no significant difference between these scores.

---Mean Self-Esteem Scores for 12th grade were 71.8 and 75.7 respectively. The t test for difference was t=1.05, p=.31 and therefore no significant difference was reported.

Analysis of Variance:

In addition to above t tests an analysis of variance was performed across grades and sex on the difference scores (post-esteem-pre-esteem). F=1.39, p=.23 and, therefore, no significant difference was reported across grades.

Across sex F=.22, p=.64 and, therefore, no significant difference was found between boys and girls on difference between their pre and post-esteem scores. There was also no significant grade by sex interaction reported (F=.62, p=.68).

General Linear Regression Analysis: (see Table 2)

A regression analysis was performed across grades with post-esteem as the dependent variable and pre-esteem and S.R.A. as independent variables. F=35.07, p=.0001, R^2=50. These results indicated that pre-esteem is the best predictor of post-esteem scores across all grades (7-12) and accounted for most of the variance in post-esteem scores (50%). S.R.A. scores were not significantly related to post-esteem scores across grades (F=1.45, p=.23).

Regression Analyses By Grade: (see Tables 3-8)

The same variables, i.e., post-esteem, pre-esteem, and S.R.A. were used in these analyses. For 7th graders F=15.91, p=.001, R^2=.76. The results indicated that pre-esteem accounted for most of variance in post esteem scores and S.R.A. was not significantly related to post-esteem scores (F=.08, p=.78).

The results for the 8th grade indicated no significant relationship between the variables tested (F=.45, p=.65). Neither pre-esteem nor S.R.A. were significantly related to post-esteem scores.

In the 9th grade the results showed a significant relationship between pre-esteem and post-esteem scores (F=13.03, p=.001, R^2=70) with pre-esteem accounting for most of the variance in post-esteem scores. There was no significant relationship reported between S.R.A. and post-esteem.

For the 10th grade the general model indicated no significant relationship between pre-esteem, S.R.A., and post-esteem (F=3.93, p=11, R^2=.66). However further analyses indicated pre-esteem alone was significantly related to post-esteem (F=7.70, p=.05) and accounted for most of the variance in post-esteem scores.

The same results were true for the 11th grade, i.e., the general model indicated an F=4.75, p=.08, R^2=.70. However pre-esteem was significantly related to post-esteem scores (F=8.91, p=.04) and accounted for most of the variance in post-esteem scores.

The 12th grade results indicated a significant relationship between the variables ($F=6.39$, $p=.0$, $R^2=.48$) with pre-esteem accounting for most of variance in post-esteem scores. S.R.A. was not significantly related to post-esteem scores ($F=2.69$, $p=.12$).

General Regression Analysis: (See Table 9)

Since there were available recent (May, 1980) 7th grade achievement scores (S.A.T. Language, Spelling, Arithmetic Computation, Concepts, Application), it was possible to generate a regression model using pre-esteem, S.R.A., and the above scores as predictors with Post-Esteem as the dependent variable.

The general linear regression model indicated a significant relationship between the predictors and Post-Esteem ($F=18.38$, $p=.002$, $R^2=.96$) with 96% of the variance accounted for.

A stepwise regression procedure indicated that pre-esteem scores were significantly related to post-esteem scores ($F=34.63$, $p=.0001$) and accounted for 76% of the variance. Pre-esteem scores and arithmetic computation were significantly related to post-esteem ($F=26.43$, $p=.0001$) and accounted for 84% of the variance. Pre-esteem scores and computation and arithmetic concepts were also significantly related to post-esteem ($F=27.76$, $p=.0001$) and accounted for 90% of the variance. Arithmetic application, Language, Spelling, and S.R.A. scores were not significantly related to post-esteem.

Summary of Conclusions

1. The self-esteem mean scores (both pre and post) were well above 50 percent in all grades.
2. While the 7th grade achieved a statistically significant and postive increase in self-esteem scores, the 10th grade achieved the largest absolute increase in pre vs. post-esteem means.
3. All grades stayed the same or achieved an increase in post-esteem mean scores. The 9th grade decreased but this result was not statistically significant.
4. There were no significant differences reported between post-esteem vs. pre-esteem scores across grades (7-12) or between sexes.
5. The major independent variable (predictor) across grades and within grades that was significantly related to post-esteem scores was pre-esteem.
6. When Stanford Achievement Test data was added to the Regression model for the 7th grade--arithmetic computation and concepts along with pre-esteem accounted for a significant proportion of the variance in pre-esteem scores. Pre-esteem and arithmetic computation were significantly and positively related to post-esteem scores ($r=+.87$ & $r=+.54$ respectively). Arithmetic concepts, however, were not significantly related to post-esteem scores ($r=+.20$).

REFERENCE

Coopersmith, S. The antecendents of self-esteem. San Francisco: Freeman, 1967.

TABLE 1

MEAN SELF-ESTEEM SCORES BY GRADE LEVEL

Grade	Pre-Esteem	Post-Esteem	t	p
7th (N=14)	61.5	67.1	2.09	.05
8th (N=15)	61.5	61.6	.03	.97
9th (N=17)	70.2	67.4	-1.83	.08
10th (N=8)	69.5	78.3	2.11	.07
11th (N=7)	57.1	60.3	.92	.39
12th (N=17)	71.8	75.7	1.05	.30

Note. ---Self-Esteem Inventory was administered in September, 1979 and May, 1980.

TABLE 2

GENERAL LINEAR REGRESSION

Dependent Variable: Post Esteem

Source	DF	Sum of Squares	Mean Square	F	p	R^2
Model	2	9638.20	4819.10	35.07	.0001	.50
Error	70	9619.76	137.42			
Total	72	19257.97				
Source	DF	Sum of Squares		F	p	
Pre Esteem	1	9439.61		68.69	.0001	
SRA	1	198.58		1.45	.23	

Note. ---SRA is a test of intelligence and was administered during the 1979-1980 school years.

TABLE 3

REGRESSION ANALYSIS: GRADE 7

Dependent Variable: Post Esteem

Source	DF	Sum of Squares	Mean Square	F	p	R^2
Model	2	2901.32	1450.66	15.91	.0008	.76
Error	10	911.59	91.15			
Total	12	3812.92				
Source	DF	Sum of Squares		F	p	
Pre Esteem	1	2893.79		31.74	.0002	
SRA	1	7.52		.08	.77	

TABLE 4

REGRESSION ANALYSIS: GRADE 8

Dependent Variable: Post Esteem

Source	DF	Sum of Squares	Mean Square	F	p	R^2
Model	2	169.96	84.98	.45	.64	.06
Error	12	2263.63	188.63			
Total	14	2433.60				
Source	DF	Sum of Squares		F	p	
Pre Esteem	1	121.94		.65	.43	
SRA	1	48.02		.25	.62	

TABLE 5

REGRESSION ANALYSIS: GRADE 9

Dependent Variable: Post Esteem

Source	DF	Sum of Squares	Mean Square	F	p	R^2
Model	2	1611.21	805.60	13.03	.001	.70
Error	11	680.21	61.83			
Total	13	2291.42				
Source	DF	Sum of Squares		F	p	
Pre Esteem	1	1468.27		23.74	.001	
SRA	1	142.94		2.31	.15	

TABLE 6

REGRESSION ANALYSIS: GRADE 10

Dependent Variable: Post Esteem

Source	DF	Sum of Squares	Mean Square	F	p	R^2
Model	2	1062.83	531.41	3.93	.11	.66
Error	4	540.59	135.14			
Total	6	1603.42				
Source	DF	Sum of Squares		F	p	
Pre Esteem	1	1040.29		7.70	.05	
SRA	1	22.54		.17	.70	

TABLE 7

REGRESSION ANALYSIS: GRADE 11

Dependent Variable: Post Esteem

Source	DF	Sum of Squares	Mean Square	F	p	R^2
Model	2	908.70	454.35	4.75	.08	.70
Error	4	382.72	95.68			
Total	6	1291.42				
Source	DF	Sum of Squares		F	p	
Pre Esteem	1	852.21		8.91	.04	
SRA	1	56.49		.59	.48	

TABLE 8

REGRESSION ANALYSIS: GRADE 12

Dependent Variable: Post Esteem

Source	DF	Sum of Squares	Mean Square	F	p	R^2
Model	2	2414.00	1207.00	6.39	.01	.47
Error	14	2643.87	188.84			
Total	16	5057.88				
Source	DF	Sum of Squares		F	p	
Pre Esteem	1	1905.94		10.09	.01	
SRA	1	508.06		2.69	.12	

TABLE 9

GENERAL LINEAR REGRESSION: GRADE 7

Dependent Variable: Post Esteem

Source	DF	Sum of Squares	Mean Square	F	p	R^2
Model	7	3670.26	524.32	18.38	.002	.96
Error	5	142.66	28.53			
Total	12	3812.92				
Source	DF	Sum of Squares		F	p	
Pre Esteem	1	2893.79		101.42	.0002	
SRA	1	7.52		.26	.62	
Comput	1	354.24		12.42	.01	
Concept	1	260.81		9.14	.02	
Applic	1	52.98		1.86	.23	
Spell	1	17.06		.60	.47	
Lang	1	83.83		2.94	.14	